

**WHAT IS CLAIMED IS:**

1. A digital broadcasting system employing a control channel and a plurality of broadcast channels, wherein the control channel is provided for transmitting therethrough a synchronous signal section and a data transmission section alternately, the system  
5 comprising:

a transmitter for transmitting summary information and control data of the plurality of broadcast channels through the control channel while allocating the summary information and the control data to the data transmission section, and transmitting a secondary broadcast corresponding to the summary information while allocating the  
10 summary information to at least one of the plurality of broadcast channels; and

a receiver for receiving a signal transmitted through the control channel, displaying the summary information retrieved from the data transmission section, and receiving a broadcast channel through which the secondary broadcast corresponding to the summary information is transmitted when there is a request to receive the secondary broadcast.

15 2. The system according to claim 1, wherein the data transmission section is divided into a control data section and a secondary broadcast section.

3. The system according to claim 2, wherein the transmitter comprises:

a first multiplexer for allocating the control data and the summary information to the control data section and the secondary broadcast section, respectively, and allocating  
20 a predetermined synchronous signal to the synchronous signal section.

4. The system according to claim 1, wherein the transmitter further comprises:

a second multiplexer for multiplexing the control data and the summary

information.

5. The system according to claim 1, wherein the summary information comprises a broadcast channel number through which the secondary broadcast is transmitted.

6. The system according to claim 5, wherein the receiver comprises:

5 a secondary broadcast determination circuit for checking whether the summary information is present in the secondary broadcast section;

a secondary broadcast extraction circuit for extracting the summary information from the secondary broadcast section; and

10 a secondary broadcast conversion circuit for retrieving the broadcast channel number from the summary information, through which the secondary broadcast is transmitted.

7. A digital broadcasting system employing a control channel and a plurality of broadcast channels, wherein the control channel is provided for transmitting therethrough a synchronous signal section and a data transmission section alternately, the system  
15 comprising:

a transmitter for dividing the data transmission section into a control data section and a secondary broadcast section, for multiplexing summary information, control data of the broadcast channels and a predetermined synchronous signal by allocating each to the secondary broadcast section, the control data section and the synchronous signal section,  
20 respectively, and for transmitting the multiplexed summary information, control data of the broadcast channels and a predetermined synchronous signal through the control channel; and

a receiver for receiving a signal transmitted through the control channel,

determining whether the summary information is present in the secondary broadcast section, and providing the summary information to a user after extracting the information from the secondary broadcast section.

5        8. The system according to claim 7, wherein the transmitter transmits a secondary broadcast corresponding to the summary information through at least one of the plurality of broadcast channels, and the receiver receives the at least one broadcast channel, through which the secondary broadcast is transmitted, in accordance with a user's request.

10       9. The system according to claim 8, wherein the summary information comprises a channel number of the at least one broadcast channel through which the secondary broadcast is transmitted.

10. The system according to claim 9, wherein the receiver comprises a secondary broadcast conversion circuit for retrieving the channel number of the at least one broadcast channel from the summary information, through which the secondary broadcast is transmitted.

15       11. The system according to claim 1, wherein the summary information comprises a message identifier for identifying the secondary broadcast, and the receiver comprises a memory for storing the message identifier.

12. The system according to claim 11, wherein the summary information comprises start and end codes and information representing the summary information size and type.

20       13. A device for receiving a secondary broadcast in a digital broadcasting system

employing a control channel and a plurality of broadcast channels, the control channel comprising a synchronous signal section and a data transmission section arranged alternately, the device comprising:

5 a receiver for receiving signals of the control channel and a channel selected by a user from the plurality of broadcast channels;

a secondary broadcast determination means for determining whether summary information of a secondary broadcast is present in the data transmission section of the control channel at a predetermined position thereof;

10 a secondary broadcast extractor for extracting the summary information transmitted while being inserted in the data transmission section at the predetermined position thereof; and

a secondary broadcast reproducer for reproducing the extracted summary information and providing the extracted summary information to the user.

14. The device according to claim 13, further comprising:

15 a secondary broadcast converter for retrieving a broadcast channel number from the summary information, through which the secondary broadcast is transmitted, and controlling the receiver to receive a broadcast channel corresponding to the broadcast channel number.

20 15. The device according to claim 13, wherein the summary information includes a message identifier for identifying the secondary broadcast, and the device further comprising a memory for storing the message identifier.

16. The device according to claim 13, wherein the summary information includes start and end codes and information representing the summary information size and type.

17. A method for receiving a secondary broadcast in a digital broadcasting system employing a control channel and a plurality of broadcast channels, the control channel comprising a synchronous signal section and a data transmission section arranged alternately, the method comprising the steps of:

5           a) receiving the control channel and a broadcast channel selected by a user from the plurality of broadcast channels, and providing a program of the selected broadcast channel to the user;

          b) searching a secondary broadcast section in the data transmission section of the control channel to determine whether there is summary information;

10          c) extracting the summary information from the secondary broadcast section; and

          d) reproducing the extracted summary information and providing the extracted summary information to the user.

18. The method according to claim 17, further comprising the step of:

15          e-1) receiving a secondary broadcast corresponding to the summary information in accordance with the user's request, and providing the secondary broadcast to the user.

19. The method according to claim 18, further comprising the step of:

          e-2) determining whether the secondary broadcast corresponding to the summary information is being transmitted through at least one of the plurality of broadcast channels.

20. The method according to claim 19, further comprising the step of:

20          e-3) checking whether the summary information includes a channel number of the at least one broadcast channel.

21. The method according to claim 19, further comprising the step of:

f) displaying whether the secondary broadcast is being transmitted through the at least one broadcast channel.

22. A method for providing a secondary broadcast in a digital broadcasting system  
5 employing a control channel and a plurality of broadcast channels, the control channel transmitting therethrough a synchronous signal section and a data transmission section alternately, the method comprising the steps of:

a) dividing the data transmission section into a control data section and a secondary  
10 broadcast section, and allocating summary information and control data of the broadcast channels to the secondary broadcast section and the control data section, respectively;

b) multiplexing the data transmission section and the synchronous signal section while arranging the data transmission section and the synchronous signal section alternately, and transmitting the multiplexed data transmission section and the synchronous signal section through the control channel;

15 c) receiving a signal transmitted through the control channel, and determining whether there is summary information in the secondary broadcast section; and

d) reproducing the summary information after extracting the summary information from the secondary broadcast section.

23. The method according to claim 22, further comprising the steps of:

20 e) transmitting a secondary broadcast corresponding to the summary information through at least one of the plurality of broadcast channels; and

f) receiving a secondary broadcast transmitted through the at least one broadcast channel in accordance with a user's request, and providing the secondary broadcast to the user.

24. The method according to claim 23, wherein the summary information comprises a channel number of the at least one broadcast channel through which the secondary broadcast is transmitted.

25. The method according to claim 23, wherein the step f) further comprises the  
5 step of:

displaying whether the secondary broadcast is being transmitted through the at least one broadcast channel.

26. A method for receiving a secondary broadcast in a digital broadcasting system employing a control channel and a plurality of broadcast channels, the control channel  
10 comprising a synchronous signal section and a data transmission section arranged alternately, the method comprising the steps of:

a) receiving the control channel and a broadcast channel selected by a user from the plurality of broadcast channels, and providing a program of the selected broadcast channel to the user;

15 b) searching a secondary broadcast section in the data transmission section of the control channel to determine whether there is summary information;

c) reproducing the summary information after extracting the summary information from the secondary broadcast section;

20 d) retrieving a broadcast channel of the plurality of broadcast channels from the summary information, through which a secondary broadcast corresponding to the summary information is transmitted; and

e) converting into the broadcast channel through which the secondary broadcast is transmitted in accordance with the user's request.

27. The method according to claim 26, wherein the step d) further comprises the steps of:

d-1) determining whether the summary information includes a broadcast channel number of the broadcast channel through which the secondary broadcast is transmitted; and

5 d-2) extracting the broadcast channel number from the summary information.

28. The method according to claim 26, wherein the step e) further comprises the step of:

e-1) displaying whether the secondary broadcast is being transmitted through the broadcast channel.

10 29. The method according to claim 17, further comprising the steps of:

g) comparing the summary information with previously received summary information to determine whether the summary information and previously received summary information are identical; and

15 h) preventing the display of the summary information when the summary information and previously received summary information are identical.

30. The method according to claim 29, wherein the step g) further comprises the step of:

g-1) comparing a message identifier included in the summary information with a message identifier stored in a memory.

20 31. The method according to claim 30, further comprising the step of:

i) storing the message identifier included in the summary information in the



memory.

32. The method according to claim 17, wherein the summary information comprises start and end codes.

33. The method according to claim 32, wherein the step of searching a secondary  
5 broadcast section in the data transmission section of the control channel to determine whether there is summary information further includes the step of checking whether the secondary broadcast section includes the start code.

34. The method according to claim 18, further comprising the steps of:

j) storing a broadcast channel number of a broadcast channel selected by the user;  
10 and

k) resuming receipt of the broadcast channel, whose channel number is stored at the step j), when a user inputs a request to terminate watching of the secondary broadcast.

35. The system according to claim 7, wherein the summary information comprises  
15 a message identifier for identifying the secondary broadcast, and the receiver comprises a memory for storing the message identifier.

36. The system according to claim 35, wherein the summary information comprises start and end codes and information representing the summary information size and type.  
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37. The method according to claim 22, further comprising the steps of:

g) comparing the summary information with previously received summary information to determine whether the summary information and previously received

summary information are identical; and

h) preventing the display of the summary information when the summary information and previously received summary information are identical.

38. The method according to claim 37, wherein the step g) further comprises the  
5 step of:

g-1) comparing a message identifier included in the summary information with a message identifier stored in a memory.

39. The method according to claim 38, further comprising the step of:

i) storing the message identifier included in the summary information in the  
10 memory.

40. The method according to claim 26, further comprising the steps of:

g) comparing the summary information with previously received summary information to determine whether the summary information and previously received  
15 summary information are identical; and

h) preventing the display of the summary information when the summary information and previously received summary information are identical.

41. The method according to claim 40, wherein the step g) further comprises the step of:

g-1) comparing a message identifier included in the summary information with a message identifier stored in a memory.  
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42. The method according to claim 41, further comprising the step of:

i) storing the message identifier included in the summary information in the memory.

43. The method according to claim 22, wherein the summary information  
5 comprises start and end codes.

44. The method according to claim 43, wherein the step of searching a secondary broadcast section in the data transmission section of the control channel to determine whether there is summary information further includes the step of checking whether the secondary broadcast section includes the start code.

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45. The method according to any one of claims 26, wherein the summary information comprises start and end codes.

46. The method according to claim 45, wherein the step of searching a secondary broadcast section in the data transmission section of the control channel to determine  
15 whether there is summary information further includes the step of checking whether the secondary broadcast section includes the start code.

47. The method according to claim 26, further comprising the steps of:

j) storing a broadcast channel number of a broadcast channel selected by the user;  
20 and

k) resuming receipt of the broadcast channel, whose channel number is stored at the step j), when a user inputs a request to terminate watching of the secondary broadcast.